CPWR
THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

# Data Bulletin

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JANUARY 2023

# Leading Causes of All Deaths Among Current, Retired, and Former Construction Workers

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## OVERVIEW

Construction is one of the deadliest industries in the United States, with over 1,000 fatal occupational injuries each year since 2016. Although fatal occupational injuries in the industry are well researched, there is limited information on construction worker deaths not on the job among construction workers despite worksite exposures and tasks that may have lifetime health impacts, such as causing cancers. Prior research found, for example, that 19% of construction workers had a respiratory disease and 26% had cancer, diabetes, or heart, kidney, or liver disease.

This Data Bulletin examines the leading *causes of death* among *construction workers* in 2020 for all deaths (both on and off the job site) and compares *at work* death trends with fatal occupational injury trends. Unless specified as at work, charts show all deaths. Examining all deaths provides important insights into conditions affecting construction workers that may be preventable, such as hypertension and diabetes, as well as information on conditions potentially associated with occupational exposures (e.g., cancers or neoplasms).

Data for all causes of death were obtained from the National Center for Health Statistics (NCHS) National Vital Statistics System (NVSS) Mortality Multiple Cause-of-Death data. The mortality data includes all states except Arizona, North Carolina, Rhode Island, and the District of Columbia. NVSS data does not include employment status (full-time, unemployed, retired, etc.) at time of death and assumptions about employment by age should be made with caution, but the data does indicate the death occurred at work. Construction workers are defined in NVSS data as those whose usual industry was construction, including individuals currently employed, retired, or no longer in the workforce. Numbers for fatal occupational injuries for all employment were obtained from the U.S. Bureau of Labor Statistics (BLS) Census of Fatal Occupation Injuries and Illnesses (CFOI). Employment figures for *civilian labor force* and *full-time equivalent workers (FTEs)* were estimated using the BLS Current Population Survey (CPS), downloaded through IPUMS. CPWR calculated fatal occupational injury rates per 100,000 FTEs.



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## THIS ISSUE

This issue examines the leading causes of death among construction workers, including those currently employed, retired, and no longer in the workforce.

## KEY FINDINGS

**In 2020, there were 224,400 deaths among construction workers with a majority occurring among those who were 65 years or older (60%), non-Hispanic (88%), white (87%), and male (96%).**
*Charts 1, 2*

**Manner of death varied by age, with 55% of construction workers 16 to 34 years old dying by an accident, whereas 67% of those 35 to 64 years old and 87% of those 65 years or older died from natural causes.**
*Chart 4*

**The leading detailed cause of death in 2020 for those 16 to 34 years old was poisoning and exposure to narcotics and hallucinogens (n=1.9K, 17%).**
*Chart 6*

**In 2020, COVID-19 was the leading detailed cause of death for those 35 to 64 years old (n=5.2K, 7%) and 65 years or older (n=14.9K, 11%).**
*Charts 7, 8*

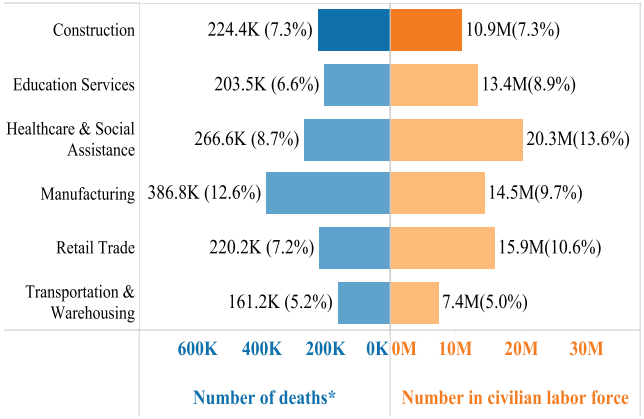
**There were 14.2K overdoses and 5.5K suicide deaths among construction workers in 2020.**
*Chart 9*

## NEXT DATA BULLETIN

Focus Four Injuries in Construction

The number of deaths and the size of the civilian labor force in the U.S. were examined by industry (chart 1). There were almost a quarter million (n=224.4 thousand (K)) deaths among construction workers in 2020. Of these deaths, a majority occurred among those who were 65 years or older (60.3%, n=135.2K), non-Hispanic (87.9%, n=197.1K), white (86.5%, n=194.1K), and males (95.5%, n=214.3K; chart 2). The construction civilian labor force follows a similar distribution.

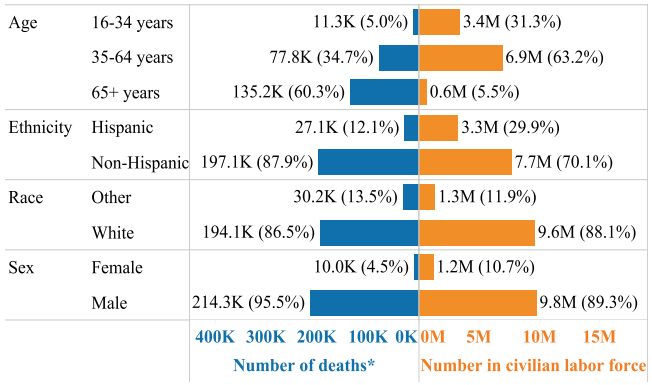
### 1. Number and percent of all deaths* and civilian labor force in selected industries, 2020




***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause-of-Death and IPUMS, 2020 Current Population Survey.*

** All causes of death are included in chart, not just at work deaths.*

### 2. Number and percent of all deaths* and civilian labor force in construction by demographics, 2020

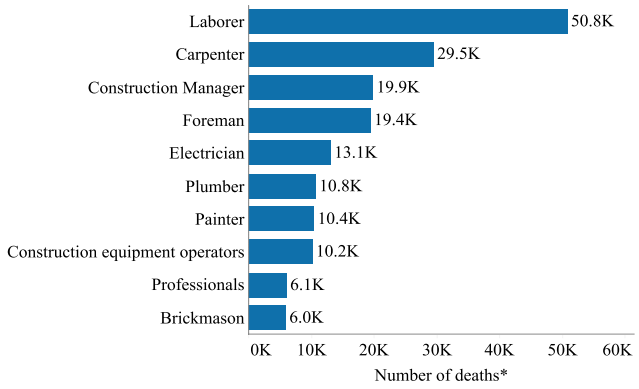



***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause-of-Death and IPUMS, 2020 Current Population Survey.*

** All causes of death are included in chart, not just at work deaths.*

The occupations in construction with the highest number of deaths were then examined (chart 3). The top three occupations were laborers (n=50.8K), carpenters (n=29.5K) and construction managers (n=19.9K), all of which fall into the top five occupations for employment in the industry in 2020.

### 3. Occupations with the most deaths in construction*, 2020

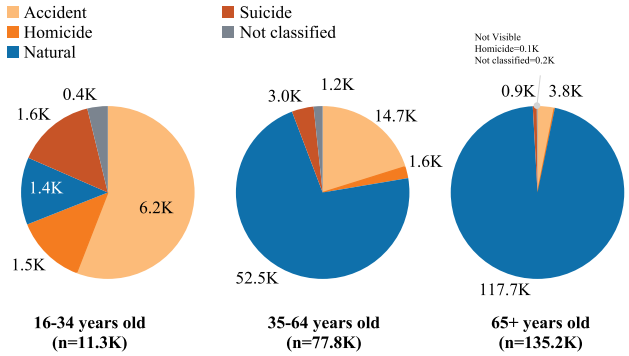



***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

Deaths were then examined by *manner of death* and age (chart 4). The majority of deaths (55.3%, n=6.2K) for those 16 to 34 years old were classified as *accidents* (e.g., motor vehicle crash, fall), whereas a majority (67.4%, n=52.5K) for those 35 to 64 years old and 65 years or older (87.0%, n=117.7K) were were *natural* (e.g., heart disease).

### 4. Deaths* in construction by manner and age group, 2020^



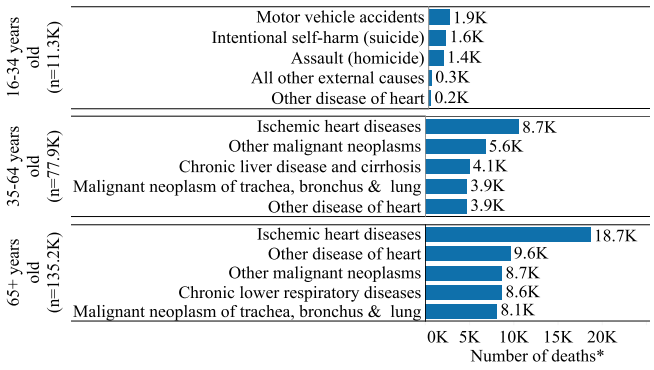

***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

*^ Due to missing values sums will not match total.*

Two different cause of death classifications were examined:1) *39 major categories* and 2) *detailed causes of deaths*. The top five causes of death by age were identified based on the 39 major categories developed by NCHS (chart 5). The leading cause of death for construction workers 16 to 34 years old were motor vehicle accidents (17.0%, n=1.9K). *Ischemic heart disease* (e.g., heart attacks) was the leading cause for those 35 to 64 years old (11.2%, n=8.7K) and those 65 or older (13.8%, n=18.7K).

### 5. Top 39 major category cause of death* among construction workers by age, 2020^



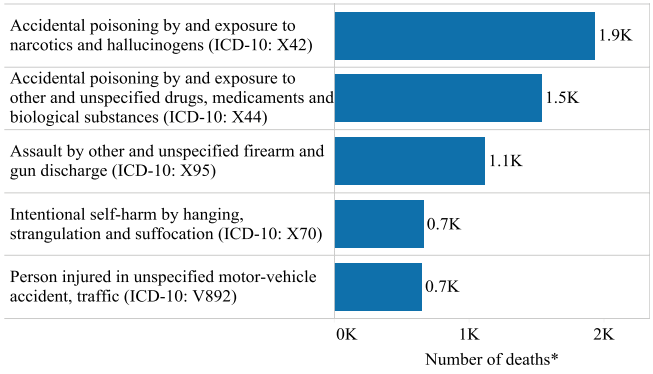

***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

*^Excludes all other and unspecified accidents and adverse effects and all other diseases (residual).*

Next, detailed causes of death were examined by age (charts 6-8). The leading detailed cause of death for those 16 to 34 years old was accidental poisoning by and exposure to narcotics and hallucinogens (17.2%, n=1.9K). The leading detailed cause for those 35 years and over was COVID-19, accounting for 6.7% (n=5.2K) of deaths in those 35 to 64 years old and 11.0% (n=14.9K) of deaths in those 65 years or older.

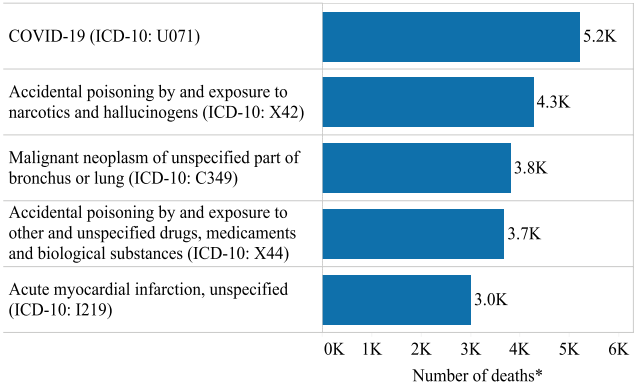
### 6. Top 5 detailed causes of death* among construction workers 16-34 years old, 2020




***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

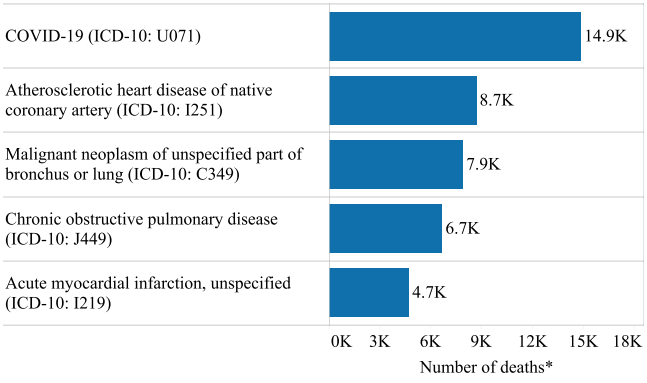
### 7. Top 5 detailed causes of death* among construction workers 35-64 years old, 2020




***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

### 8. Top 5 detailed causes of death* among construction workers 65 years or older, 2020

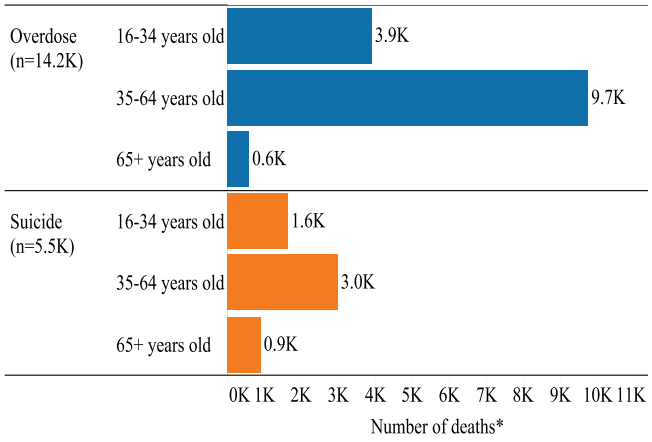



***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

Causes of deaths determined to be *overdoses* and *suicides* were then examined by age. In 2020, there were 14.2K overdose and 5.5K suicide deaths among construction workers (chart 9). A majority of these deaths occurred among those in the 35 to 64 age group, which accounted for 68.5% (n=9.7K) of the overdose deaths and 54.1% (n=3.0K) of suicide deaths.

### 9. Number of deaths* for selected emerging issues in construction by age, 2020^



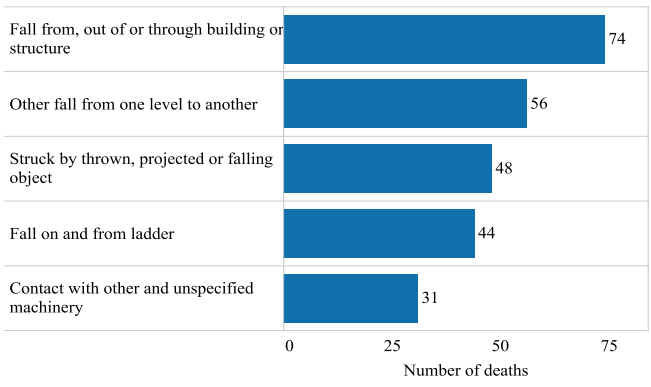

***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

** All causes of death are included in chart, not just at work deaths.*

*^ Suicides include overdoses determined to be intentional.*

Next, deaths at work were compared to fatal occupational injury data from BLS CFOI (charts 10-12). CFOI and NVSS data cover fatalities occurring at work but differ on reporting requirements and available injury information. The leading cause of at work deaths among construction workers 16 to 64 years old were falls from, out of, or through a building or structure (n=74), followed by other falls from one level to another (n=56), and finally struck by thrown, projected, or falling object (n=48; chart 10).

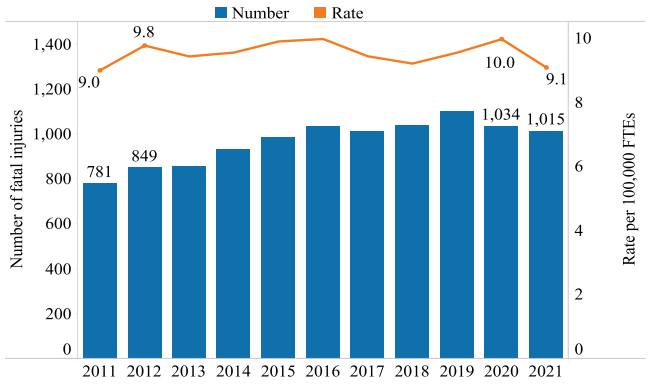
### 10. Top 5 detailed causes of death among construction workers 16-64 years old at work, 2020




***Source:*** *National Center for Health Statistics, 2020 Mortality Multiple Cause File.*

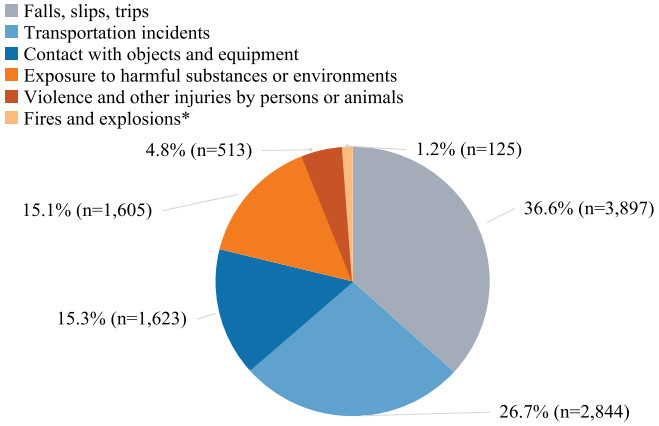
Occupational fatal injuries in construction were then examined. There were 967 construction workers in the U.S. annually who lost their lives on average due to an occupational injury, with a total of 10,640 workers dying from 2011-2021 (chart 11). The average annual fatal injury rate was 9.5 per 100,000 FTEs. From 2020 to 2021, the number of fatal injuries decreased 1.8% (1,034 to 1,015), while the rate decreased 9.0% (10.0 to 9.1). *Event or exposures* for fatal occupational injuries were then examined. From 2011 to 2021, a majority of fatal occupational injuries in construction resulted from falls, slips, and trips (36.6%; n=3,897) followed by transportation incidents (26.7%, n=2,844) (chart 12). These events or exposures are similar to those reported in Chart 10, which also shows falls were the top causes of at work deaths.

### 11. Number and rate of occupational fatal injuries in construction, 2011-2021




***Source:*** *U.S. Bureau of Labor Statistics, 2011-2021 Census of Fatal Occupational Injuries and 2011-2021 IPUMS Current Population Survey.*

### 12. Event or exposure for occupational fatal injuries in construction, 2011-2021




***Source:*** *U.S. Bureau of Labor Statistics, 2011-2021 Census of Fatal Occupational Injuries.*

**2021 data unavailable.*

Construction jobs are diverse and hazardous, as shown by the number of both fatal and nonfatal injuries on site, in addition to the many other risks that impact workers throughout their lifetimes, such as cancer and heart disease. Understanding causes of death among construction workers provides valuable information that can be used to address potentially preventable conditions.

In 2020, almost a quarter million (n=224.4K) individuals whose usual industry was construction died. Construction workers 35 years or older were more likely to die from natural causes with the leading cause of death category being ischemic heart disease (e.g., heart attacks). COVID-19 was the leading detailed cause of death in those 35 years or older.

Overdoses and suicides resulted in 14.2K and 5.5K deaths among construction workers in 2020, respectively, supporting the industry's growing concern about these emerging issues. CPWR has created webpages and other free resources dedicated to addressing both Mental Health and Addiction.

The leading causes of at work deaths were falls and struck-by injuries, the top two Focus Four categories. CPWR, OSHA, and NIOSH all produce resources to address the top causes of occupational injuries, including the Focus Four. Research from CPWR's Building Trades National Medical Screening Program (BTMed), which provides free medical screenings to construction workers formerly employed at Department of Energy nuclear weapon sites to monitor for cancer and other serious health conditions resulting from occupational exposures, has documented a range of long-term occupational effects from construction work.

## ACCESS THE CHARTS & MORE

**View the charts in PowerPoint and the data underlying the charts in Excel. Downloading will start when you click on each link. These files can also be found under the Data Bulletin at: https://www.cpwr.com/research/data-center/data-reports/. See our latest Interactive Data Dashboards on Leading Causes of Death, Electrical Injuries, and Health Insurance in Construction.**

## DEFINITIONS

***At work*** *– Death that occurred at work. These deaths typically capture hazardous working conditions or events.*

***Causes of death*** *– The specific condition that caused the death based on the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis Code. Two classifications are examined in the Data Bulletin:*

- ***39 major categories*** *– Common 39 groupings of ICD-10-CM codes defined for use in NCHS publications. For more information see: The 2020 Documentation Initial Release Mortality Multiple Cause-of Death Public Use Record.*
- ***Detailed cause of death*** *– The specific ICD-10-CM Code. Codes can be found using the World Health Organization's ICD-10 Tool.*
- ***Ischemic heart disease*** *– Heart conditions caused by narrowed heart arteries due to plaque buildup, including chest pain and heart attacks.*
- ***Overdoses*** *– Deaths resulting from the following ICD-10 CM Codes: X40–X44, X60–X64, X85, and Y10–Y14.*
- ***Suicides*** *– Deaths resulting from the following ICD-10 CM CODES: U03, X60–X84, and Y87.*

***Civilian labor force*** *– Individuals who are at least 16 years old, not in the military, and not institutionalized who have or are seeking a job.*

***Construction workers*** *– Definition varied by data source, workers defined as:*

- ***NVSS (cause of death data)*** *– Individuals whose reported usual industry was construction regardless of if they are currently employed. The data source does not include information on current work status beyond if the death was due to a work injury. This definition is used in Charts 1-10.*
- ***CFOI (fatal occupational injury data)*** *– Individuals who were fatally injured while working in the construction industry. This definition is used in Charts 11-12.*

***Event/Exposure –*** *The manner in which the injury or illness was produced or inflicted, such as a fall, heat-related illness, etc. For example, a worker was using a hand-held electric auger which struck a powerline would have a reported event or exposure of "Exposure to electricity," with their reported primary source being "Tools, instruments, and equipment: Handtools-powered." Full definitions for categories can be found in the Occupational Injury and Illness Classification Manual.*

***Full-time equivalent worker (FTEs) –*** *Determined by the hours worked per employee on a full-time basis, defined as working 2,000 hours (40 hours x 50 weeks) per year.*

***Manner of death*** *– Categorization of death as:*

- ***Accident*** *– Death resulting from unnatural causes, such as a motor vehicle crash.*
- ***Natural*** *– Death resulting from a disease or natural process, such as heart attack.*
- ***Not classified*** *– Death in which the manner is still be investigated or those in which the manner could not be determined.*
- ***Suicide*** *– Death resulting from an intentional self-inflicted injury with intent to die.*

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## ABOUT THE CPWR DATA CENTER

The CPWR Data Center is part of CPWR–The Center for Construction Research and Training. CPWR is a 501(c)(3) nonprofit research and training institution created by NABTU, and serves as its research arm. CPWR has focused on construction safety and health research since 1990. The Data Bulletin, a series of publications analyzing construction-related data, is part of our ongoing surveillance project funded by the National Institute for Occupational Safety and Health (NIOSH).

Besides cpwr.com, visit CPWR's other online resources to help reduce construction safety and health hazards:

- Choose Hand Safety
  https://choosehandsafety.org/
- Construction Safety and Health Network
  https://safeconstructionnetwork.org/
- Construction Solutions
  https://www.cpwrconstructionsolutions.org/
- Construction Solutions ROI Calculator
  https://www.safecalc.org/
- COVID-19 Construction Clearinghouse
  https://covid.elcosh.org/index.php
- COVID-19 Exposure Control Planning Tool
  https://www.covidcpwr.org
- Electronic Library of Construction Occupational Safety and Health
  https://www.elcosh.org/index.php
- Exposure Control Database
  https://ecd.cpwrconstructionsolutions.org/
- Nano Safety Data Sheet Improvement Tool
  https://nanosds.elcosh.org/
- Safety Climate - Safety Management Information System (SC-SMIS)
  www.scsmis.com
- Stop Construction Falls
  https://stopconstructionfalls.com/
- Work Safely with Silica
  https://www.silica-safe.org/


CPWR is the research and training arm of NABTU. Production of this document was supported by cooperative agreement OH 009762 from the National Institute for Occupational Safety and Health (NIOSH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH.

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